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09/619,531	07/19/2000	Dr. Werner Groh	032745-023	2261

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EXAMINER

RUDDOCK, ULA CORINNA

ART UNIT	PAPER NUMBER
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1771

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DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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MF-9

Office Action Summary

Application No.

09/619,531

Applicant(s)

Groh et al.

Examiner

Ula Corinna Ruddock

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 25, 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above, claim(s) 16-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 5 6) ☐ Other:

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DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of Group I in Paper No. 8 is acknowledged. The traversal is on the ground(s) that Groups I and II are sufficiently interrelated and that a single search would be enough to turn up art for both the article and process claims. This is not found persuasive because the restriction requirement of Paper No. 7 sets forth two distinct and independent species. Furthermore, the Examiner would be burdened by searching process claims in addition to article claims. Contrary to Applicant's arguments, the Examiner will not search the process area for the product claims nor the product area for the process claims.

The requirement is still deemed proper and is therefore made FINAL.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119 (a)-(d). The certified copies have been received and entered.

Information Disclosure Statement

3. The information disclosure statement filed November 29, 2000 has been considered.

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Claim Objections

4. Claim 2 is objected to because of the following informalities: the improper use of punctuation and language. Applicant discloses that “the binding agent is selected from the group consisting of polyvinylacetate and starch, urea and melamine.” According the present specification on page 6, lines 27-29, “the binding agent [is] selected from the group including polyvinylacetate, starch, urea, or melamine.” It is suggested that Applicant amend the claim to read “polyvinylacetate, starch, urea, and melamine.”

Claim 9 is objected to because of the following informalities: Applicant discloses a “minor draft” in claim 9, but the specification discloses a “small draft” (pg 10, ln 7). In order to clarify the record, it is suggested that Applicant amend the claim to read on a “small draft” in accordance with the specification.

Claim 15 is objected to because of the following informalities: Applicant discloses that “the woven web or scrim contains fibers of E, C, mixtures of the thereof, and ECR fibers.” It is suggested that Applicant amend the claim to delete “of the.” It is also suggested that Applicant add the word “glass” to the claim to further clarify that these fibers are types of glass fibers.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is considered indefinite because it discloses "at least one...synthetic filament nonwoven layer and at least one woven web or scrim" (lines 2 and 3) and further discloses "said synthetic non-wovenss and said woven webss or scrimss" (lines 6 and 7) (Emphasis added). This claim is indefinite because lines 6 and 7 imply that there are always more than one synthetic non-woven and that there is always more than one woven web or scrim of glass fibers. However, only "at least one," in lines 2 and 3, is being positively claimed. It is suggested that Applicant amend the claim to read "said at least one synthetic non-woven and said at least one woven web or scrim," in lines 6 and 7. Correction is required.

Claim 1 recites the limitation "the polyester filaments" in lines 6 and 7. There is insufficient antecedent basis for this limitation in the claim. Correction is required.

In addition, Claim 1 is indefinite because it discloses that the "filaments....emerge at the lower surface and lie adjacent thereto." It is unclear to the Examiner what is meant by "like adjacent thereto." Does Applicant mean that the fibers are bent or that the fibers, once they are penetrated through the lower surface of the laminate, remain at the lower surface? It should be

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noted that the Examiner will be interpreting the claim to simply read that the fibers emerge and remain at the lower surface.

Claim 11 is indefinite because it discloses "the glass woven web includes weft and warp yarns, the titer of which differs by at least a factor of 2." It is unclear to the Examiner what is meant by the phrase "the titer of which." Does Applicant mean the titer of the individual warps, the titer of the individual wefts, or that the titer of both the warp and weft yarns differ by a factor of two? Correction is required. The Examiner will be interpreting the claims as if the titer of both the warp and weft yarns differ by a factor of two.

Claim 12 is considered indefinite because it discloses "synthetic nonwovens" and is dependent upon claim 1. This claim is indefinite because it is implying that there are always more than one synthetic non-woven layer. However, only "at least one" is being positively claimed. Correction is required. The dependent claims are rejected for being dependent upon a rejected independent claim.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 1, 2, and 4-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heidel et al. (US 5,171,629) in view of Hartmann et al. (US 4,714,651) and Schops et al. (US 6,235,657). Heidel et al. disclose a carrier web consisting of a glass fiber mat and a mat of synthetic fibers (i.e. a nonwoven) which are needled together (abstract). It should be noted that some of the synthetic nonwoven filaments will naturally penetrate through the laminate and emerge at the lower surface. With regard to claim 2, the glass fiber mat is preconsolidated using polymer binders such as melamine resins (col 2, ln 9-17). The synthetic nonwoven fiber can be a polyester fiber (col 2, ln 25-30). With regard to claim 4, the non-woven undergoes pre-consolidation by a calendering process (col 2, ln 46-49). The web can be end-consolidated with a binder (col 2, ln 11-13). Heidel et al. fail to teach that the glass fiber mat is a woven web or a scrim, that the non-woven layer is pre-consolidated by needling, and that the needling rate is 30-50 stitches/cm². Heidel et al. also fail to specifically teach that the final consolidation is by an acrylate or a styrene binder and that the binder is present in an amount of 5-35% weight percent or 14-18% weight percent based on the total weight of the laminate. Heidel et al. also fail to disclose that the laminate includes two synthetic non-woven layers and a glass woven web, wherein the glass woven web includes weft and warp yarns having a titer which differs by at least a factor of 2. Finally, Heidel et al. also fail to disclose that the non-woven are not preconsolidated and that the glass woven web includes both continuous glass filaments and staple fiber yarns.

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Hartmann et al. (US 4,714,651) disclose high strength roofing materials (abstract).

The material comprises a spunbonded carrier layer of organic materials, such as polyester (col 3, ln 61-64) that can be bonded to at least one further layer of inorganic material (col 2, ln 28-30), for example, woven glass fabrics (col 3, ln 68). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used Hartmann's woven glass fabric in place of Heidel's glass fiber mat motivated by the desire to obtain a carrier web with increased dimensional stability.

With regard to claim 11, it should be noted that optimizing the titer of the weft and warp yarns of the glass fabric of Hartmann et al. is a result effective variable. For example, increasing the titer of a yarn would directly affect the strength of the yarn. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the titer of the warp and weft yarns differ by at least a factor of 2, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have optimized the titer of the warp and weft yarns motivated by the desire to obtain a web with increased oriented strength.

Schops et al. (US 6,235,657) disclose a laminate with spunbonded (i.e. nonwoven) webs and laid reinforcing components (abstract) that is useful for reinforcing bitumen sheets (col 1,

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In 6-9). The laminate is joined together by needling at about 20-70 stitches/cm². With regard to claim 11, the laminate can be composed of two web components and a laid layer in between (col 5, In 5-7). The laid yarns can be staple fiber yarns or filament yarns, provided that they possess the desired combination of breaking strength and breaking extension (col 4, In 14-17). The nonwoven layer can also be needled (col 5, In 26-27). The needled laminates can be additionally consolidated with a chemical binder such as a styrene copolymer (col 5, In 21-23).

With regard to claim 1, it would have been obvious to one having ordinary skill in the art to have used the styrene copolymer binder of Schops et al. on the web of Heidel et al. and Hartmann et al., motivated by the desire to obtain a web having increased durability.

With regard to claims 5 and 6, it would have been obvious to one having ordinary skill in the art to have employed the pre-consolidation needling method of Schops et al. on the nonwoven fabric of Heidel et al. motivated by the desire to obtain a laminate with increased strength. It also would have been obvious to one having ordinary skill in the art to needle together the layers of Heidel et al. at a rate of about 20-70 stitches/cm², as shown by Schops et al., motivated by the desire to obtain a web having substantial mechanical strength.

With regard to claims 7 and 8, it should be noted that optimizing the amount of binder added to the laminate is a result effective variable. The amount of binder would directly affect the durability of the laminate. Therefore, it would have been obvious to one having ordinary skill in the

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art at the time the invention was made to have used 5-35%, or 14-18% of the styrene binder of Schops et al. on the web of Heidel et al. and Hartmann et al., since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have optimized the amount of binder motivated by the desire to obtain a web with increased durability.

With regard to claims 9 and 10, it is the Examiner's position that the laminate of Heidel et al., Hartmann et al., and Schops et al., is identical to or only slightly different than the claimed laminated web prepared by the method steps present in claims 9 and 10, because both laminates have the same structure, i.e. a laminate having a synthetic nonwoven fabric needled to a woven glass fabric. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983).

With regard to claim 11 and 12, it would have been obvious to one having ordinary skill in the art to have used the second synthetic nonwoven layer as taught by Schops et al. in combination

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with the web of Heidel et al. and Hartmann et al., motivated by the desire to obtain a web having increased reinforcing capabilities. As a result, the laminate would have the three layers as required by the present invention.

With regard to claim 12, it would have been obvious to one having ordinary skill in the art to have not consolidated the nonwoven fabricss of Heidel et al., Hartmann et al., and Schops et al., motivated by the desire to obtain a web with increased loft.

With regard to claim 13, it would have been obvious to one having ordinary skill in the art to have used Schops's teaching of using both staple fiber yarns and filament yarns in the glass fabric on the woven glass fabric of Hartmann et al. motivated by the desire to obtain a glass fabric possessing the desired combination of breaking strength and breaking extension.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heidel et al. (US 5,171,629), Hartmann et al. (US 4,714,651) and Schops et al. (US 6,235,657), as applied to claims 1, 2, and 4-13 above, and further in view of Baravian et al. (US 5,616,395). Heidel et al. , Hartmann et al., and Schops et al. disclose the claimed invention except for the teaching that the synthetic filaments are heat shrunk.

Baravian et al. disclose a textile reinforcement for bituminous roofing (abstract). The reinforcement comprises a needled (col 2, ln 62) nonwoven synthetic fabric (col 3, ln 56-58) bonded to a glass scrim (claim 5). The nonwoven layer is heat shrunk (col 4, ln 12-16). It would have been

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obvious to one having ordinary skill in the art at the time the invention was made to have used the heat shrinking method of Baravian et al. on the web of Heidel et al., Hartmann et al., and Schops et al., motivated by the desire to obtain a web that will be flat after consolidation and will not undergo curling.

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heidel et al. (US 5,171,629), Hartmann et al. (US 4,714,651) and Schops et al. (US 6,235,657) as applied to claims 1, 2, and 4-13 above, and further in view of Binnersley et al. (US 4,816,327). Heidel et al., Hartmann et al., and Schops et al. disclose the claimed invention except for the teaching that the weft yarns are tapes.

Binnersley et al. disclose woven fabrics made from impregnated glass fibers in which the weft yarns are tapes (col 2, ln 40-47). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the weft tapes of Binnersley et al. in place of the weft yarns of Heidel et al., Hartmann et al., and Schops et al., motivated by the desire to create a woven fabric having improved cover factor..

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heidel et al. (US 5,171,629), Hartmann et al. (US 4,714,651) and Schops et al. (US 6,235,657) as applied to claims 1, 2, and 4-13 above, and further in view of Johnson (US 5,571,596). Heidel et al. (US 5,171,629), Hartmann et al. (US 4,714,651) and Schops et al. (US 6,235,657) disclose the

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claimed invention except for the teaching that the woven web contains glass fibers of E, C, mixtures thereof, and ECR fibers.

Johnson (US 5,571,596) disclose a roofing shingle including a plain woven E-glass fabric (col 7, ln 5-6). It would have been obvious to one having ordinary skill in the art at the time invention was made to have used the E-glass fibers of Johnson in the web of Heidel et al., Hartmann et al., and Schops et al., motivated by the desire to obtain a web having cheaper processing costs as a result of using inexpensive glass fibers.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ula C. Ruddock whose telephone number is (703) 305-0066. The Examiner can normally be reached Monday through Thursday from 6:30 AM to 5 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor Terrel Morris can be reached at (703) 308-2414.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-2351.

Ula C. Ruddock *UCR*
Patent Examiner
Art Unit 1771
June 3, 2002

Ula Ruddock